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# SUSTAINABILITY BALANCED SCORECARD (SBSC) AS A PERFORMANCE MEASUREMENT OF CORPORATE SUSTAINABILITY

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**Abstract.** The purpose of this research is to examine the performance assessment technique of corporate sustainability, which is based on measurement using the Sustainability Balanced Scorecard (SBSC) perspective. The SBSC is an evolved performance measurement framework of the Balanced Scorecard (BSC), originally developed by Kaplan and Norton in 1996. This SBSC measurement incorporates four perspectives adopted from the BSC, but further enhanced with environmental performance indicators. The four aspects of the SBSC include the financial perspective, stakeholder perspective, internal process perspective, and learning and growth perspective. For this study, the researchers employed a qualitative descriptive research approach, analyzing the conceptual framework of SBSC developed by Nikolaou in 2013. The research focused on pharmaceutical companies listed on the Indonesian Stock Exchange (IDX) as the subject of investigation. The research findings revealed that the conceptual framework for sustainability performance assessment developed by Nikolaou can be effectively employed as a reliable and transparent means of evaluating sustainability performance

**Keywords:** Sustainability Balanced Scorecard (SBSC); Performance Measurement Of Corporate Sustainability

## I. INTRODUCTION

The sustainability of a company broadly refers to the voluntary activities undertaken by the company to disclose information related to its social and environmental endeavors within its business operations and interactions with stakeholders. Research conducted by Lozano and Haartman (2018) identifies the most crucial drivers of corporate sustainability and highlights the need for a holistic perspective that emphasizes creating long-term environmental, social, and economic value through sustainability-oriented strategies, business models, investments, and management tools. Previous studies have found that the use of performance measurements and appropriate management control systems can support strategy implementation and propel organizations toward sustainability goals (Baumgartner, 2014). Lueg and Radlach (2016) discovered that a combination of formal and informal controls seems necessary to reinforce each other and address different dimensions of sustainability.

One frequently used performance assessment tool is the balanced scorecard, which not only evaluates an organization's performance from a financial perspective but also from non-financial aspects, such as customer perspective, internal business perspective, and growth and development perspective. Novitasari et al. (2018) suggest that using the balanced scorecard for performance measurement provides a comprehensive overview of organizational performance. However, due to the diverse interpretations of sustainable performance, various approaches have been suggested for presenting sustainability reports. Hence, experts propose that the balanced scorecard (BSC) can be utilized as a performance measurement technique, incorporating environmental and social aspects into the core management system to effectively support decision-making procedures and strategic controls in companies (Antonsen, 2014). Consequently, the sustainability balanced scorecard (SBSC) has been gradually developed, differing significantly from the conventional BSC. While the conventional BSC focuses on corporate profitability, the SBSC also addresses social responsibility and environmental responsibility (Groot and Selto, 2013). By implementing SBSC, companies not only connect strategy and execution but also link economic, environmental, and societal sustainability to develop long-term sustainability strategies. Thanks to the efforts of experts, the SBSC analytical framework has become more comprehensive (Mio et al., 2021).

In discussing SBSC, sustainability performance is an inseparable topic. Currently, companies tend to assess environmental performance solely based on financial disclosures related to environmental costs, limiting their focus to financial aspects only. However, based on research findings (8), it is evident that appropriate tools are required to evaluate and design corporate sustainability goals. Therefore, the purpose of this study is to address the current theoretical limitations of SBSC and the lack of empirical studies in developing a new SBSC assessment framework. Ultimately, this research aims to (a) evaluate reliable and transparent assessment techniques for appraising corporate sustainability performance and (b) measure corporate sustainability performance through sustainability reports..

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Sustainability Balanced Scorecard The Balanced Scorecard (BSC), developed by Kaplan and Norton (1992), has proven to be one of the most influential tools in strategic management (Hansen and Schaltegger, 2018). It assumes that when a company focuses on elements such as employee knowledge and customer relationships, it gains a competitive advantage (Schaltegger and Lüdeke-Freund, 2011). However, previous research has shown that the conventional BSC considers four dimensions—financial, customer, internal processes, and learning and growth—while overlooking sustainability concerns. Therefore, it is necessary to adapt the BSC to the ever-changing business environment and integrate sustainability issues (Jassem et al., 2021).

Butler et al. (2011) demonstrated that while the conventional BSC framework helps managers align sustainable development goals with corporate strategy, it must also encompass economic, social, and environmental aspects to be truly sustainable. Economic indicators are already addressed within the conventional BSC from a financial perspective. Hence, incorporating sustainability into the BSC should focus on measuring social and environmental indicators (Reverte, 2012). One approach is to integrate social and environmental metrics into the existing BSC framework, including the identified goals, indicators, and Global Reporting Initiative (GRI) standards (Schaltegger and Lüdeke-Freund, 2011). GRI can assist managers by providing various performance indicators and department-specific metrics.

Researchers emphasize that developing a Sustainable Balanced Scorecard (SBSC) specific to each business sector and identifying relevant social and environmental indicators aligned with the sector's strategy is crucial. Research on SBSC implementation across various industries has been increasing, with several studies considering its use for business performance measurement (Nortjé et al., 2014; Huang et al., 2014; Mio et al., 2021). For instance, Rabbani et al. (2014) presented a comprehensive new model based on SBSC, employing a multi-criteria decision-making approach for an oil production company in Iran to evaluate its operational performance.

Chung et al. (2016) used the bicycle industry in Taiwan as an example to further explore performance indicators and conduct an SBSC stakeholder analysis. Additionally, Hansen and Schaltegger (2016) highlighted that implementing SBSC is not a one-time learning experience but an ongoing organizational learning process. It enhances the organization's awareness of sustainable corporate development, the adaptability of methods for sustainable strategic management, and overall sustainable development. Revising and renovating SBSC is considered a methodology for sustainability-oriented organizational development (Beusch et al., 2022).

Sustainability Performance As a response to national and international regulations and increasing pressure from society for sustainable development, companies are gradually adopting guidelines related to social and environmental responsibility in their strategies, structures, and management systems (Dinçer et al., 2022). Multinational initiatives like the Sustainable Development Solutions Network (SDSN) advocate the need to address cross-sectoral constraints among social, environmental, and financial issues and avoid overly individualistic sustainability concepts and approaches (Butler et al., 2011). Beusch et al. (2022) demonstrate that sustainable development cannot be achieved through unilateral policies or actions but requires comprehensive efforts at all levels, including society, environment, and finance. Dinçer et al. (2022) also believe that predictable sustainability conditions result from interactions among organizations, individuals, society, and governments

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## II. RESEARCH METHODS

This study employs a descriptive quantitative research design, where the researcher will calculate the company's environmental performance using the BSC perspective. Quantitative data will be used, sourced from secondary data such as the financial reports and environmental accountability reports of companies listed on the Indonesian Stock Exchange (IDX). The analysis focuses on pharmaceutical companies that meet specific criteria: (1) have received a gold proper index; (2) provide both financial and social accountability reports; and (3) offer all necessary information for the research.

To measure environmental performance using the SBSC perspective, two main categories of indicators will be used: accountability indicators and performance indicators. Accountability indicators will be assessed based on the company's disclosures according to the GRI standards. Performance indicators will compare the environmental performance in the financial reports of the current year (n) with that of the previous year (n-1). The SBSC will employ the four BSC perspectives: (a) financial perspective, which includes conventional financial and accounting indicators; (b) customer perspective, involving goals, targets, and indicators related to customer satisfaction and trust; (c) internal process perspective, encompassing the company's internal operational and production processes; and (d) learning and growth perspective, identified through GRI indicators to incorporate environmental and social aspects. The proposed GRI indicators per BSC perspective are as follows (Nikolaou et al., 2013).

Tabel 1. GRI Indicator In BSC Perspective

| No | Sustainability Balanced Scorecard | Indicator Total | GRI Indicator |
|---|---|---|---|
| 1 | Financial Perspective | 11 | EC1, EC2, EC3, EC4, EC5, EC8, EN28, EN30, SO6, SO8, PR9. |
| 2 | Stakeholder Perpsective | 41 | EC6, EC7, EC9, EN9, EN11, EN12, EN13, EN14, EN15, EN25, LA1, LA2, LA3, LA4, |

| | | | |
|---|---|---|---|
| | | | LA5, LA6, LA7, LA9, LA12, LA13, LA14, HR1, HR2, HR4, HR5, HR6, HR7, HR9, SO1, SO2, SO4, SO5, SO7, PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8. |
| 3 | Internal Business Perspective | 21 | EN1, EN2, EN3, EN4, EN5, EN6, EN7, EN8, EN10, EN16, EN17, EN18, EN19, EN20, EN21, EN22 |
| 4 | Learning and Growth Perpsective | 6 | LA8, LA10, LA11, HR3, HR8, SO3 |
| **Indicator Total** | | 79 | |

The accountability indicators are measured using three points, as follows:

0: Taking the indicator when relative information is not mentioned;

1: Taking the indicator when qualitative information is mentioned;

2: Taking the indicator when quantitative information is mentioned (e.g., the amount of water usage, BOD, and COD).

Additionally, each item of the performance indicators is directly related to the score given to the item in the previous accountability indicator. The score of each item is also measured using a three-point scale, as follows: Taking the indicator when this year's performance level is worse than the previous year's (e.g., CO2 decreased by 3% in 2021 compared to a 5% decrease in 2020).

1. Taking the indicator when this year's performance level remains constant compared to the previous year (e.g., CO2 decreased by 3% in both 2021 and 2020).
2. Taking the indicator when a better performance level has been achieved this year compared to the previous year (e.g., CO2 decreased by 5% in 2021 and only 3% in 2020). This is the mathematical formula for measuring environmental performance:
   SBSC scoring index = Accountability indicator + Performance indicator

## II. RESULT AND DISCUSSION

### A. *Analisis Deskriptif Sustainability Balanced Scorecard (SBSC)*

The primary objective of this research is to design a performance assessment technique for the sustainability of companies, particularly those listed on the Indonesia Stock Exchange (IDX) in the pharmaceutical sector. The research utilizes the Sustainability Balanced Scorecard (BSC) framework, incorporating four perspectives of the balanced scorecard and integrating sustainability performance indicators based on the Global Reporting Initiative (GRI) indicators. Through a meticulous selection process, the research has identified one company that meets the predefined sample criteria among all the pharmaceutical companies listed on the IDX - PT. Sido Muncul, Tbk (SIDO).

### B. Analysis of Environmental Accountability Indicators and Sustainability Performance

From this research, it is evident that the sustainability performance assessment framework developed by Nikolaou et al (2013) can serve as an effective measurement for assessing a company's sustainability performance. This conclusion is drawn from the findings obtained during the course of this study, as follows:".

Tabel 2 Accountability Indicator 2020-2022

| NO | *SUSTAINABILITY BALANCED SCORE* | Indicator Total | AAccountability | | |
|---|---|---|---|---|---|
| | | | 2020 | 2021 | 2022 |
| 1 | Financial Perspective | 11 | 13 | 13 | 13 |
| 2 | Stakeholder Perspective | 41 | 37 | 54 | 56 |
| 3 | Internal Business Perspective | 21 | 22 | 30 | 30 |
| 4 | Learning and Growth Perspective | 6 | 6 | 5 | 6 |
| | | | | | |

From Table 2 above, we can observe that the overall accountability indicator values meet the measurement criteria for assessing the financial accountability perspective. These values are derived from the total of financial perspective indicators in the year 2020, which is 13. Considering this value against the financial perspective assessment criteria for the year 2020, it falls within the range of 0 to 22. The same applies for the year 2021, where the value is also 13, falling within the assessment range of 0 to 22. Similarly, in the year 2022, the value remains 13, which aligns with the financial perspective assessment criteria for that year (0 to 22). This data demonstrates that SIDO company's financial accountability indicators meet the measurement criteria

Furthermore, the stakeholder perspective calculations in Table 1.2 reveal values of 37, 54, and 56 for the years 2020, 2021, and 2022, respectively. These values fall within the corresponding assessment criteria ranges of 0 to 82 for each respective year. This data suggests that SIDO company's accountability indicators, from the stakeholder perspective, also meet the measurement criteria. Similarly, from the internal process perspective, the table shows values of 22, 30, and 30 for the years 2020, 2021, and 2022, respectively. These values lie within the assessment criteria range of 0 to 42 for each corresponding year. Thus, the data indicates that SIDO company's accountability indicators from the internal process perspective meet the measurement criteria. Lastly, the learning and growth perspective in Table 1.2 presents values of 6, 5, and 6 for the years 2020, 2021, and 2022, respectively. These values align with the assessment criteria range of 0 to 12 for each respective year. Therefore, the data demonstrates that SIDO company's accountability indicators, from the perspective of learning and growth, also meet the measurement criteria. The results of the sustainability

balanced scorecard measurement for performance indicators can be found in the following table..

Tabel 3. Accountability Indicator 2020-2022

| NO | *SUSTAINABILITY BALANCED SCORE* | Performance | |
|---|---|---|---|
| | | 2020/2021 | 2021/2022 |
| 1 | Financial perpsective | 15 | 17 |
| 2 | Stakeholder Perspective | 64 | 67,5 |
| 3 | Internal Prospect Perspective | 26 | 27 |
| 4 | Learning and Growth Perspective | 8,5 | 10 |

From Table 3 above, it presents the calculations of the company's performance indicators for the years 2020/2021 and 2021/2022. The results from Table 1.2 indicate the financial performance for the year 2020/2021, achieving a score of 15. This score falls within the performance indicator assessment standard of 0⩽15⩽22. For the year 2021/2022, the score was 17, which also falls within the performance indicator assessment standard of 0⩽17⩽22. Based on this data, we can conclude that from a financial perspective, the sustainability performance assessment of SIDO Company has met the SBSC assessment standard. From the stakeholder perspective, in the year 2020/2021, the score obtained was 64, falling within the performance indicator assessment standard of 0⩽64⩽82. For the year 2021/2022, the score was 67.5, which falls within the performance indicator assessment standard of 0⩽67.5⩽82. Based on this data, we can conclude that from a stakeholder perspective, the sustainability performance assessment of SIDO Company has met the SBSC assessment standard. Regarding the internal perspective, the sustainability performance score obtained from Table 1.3 was 26 for the year 2020/2021, within the performance indicator assessment standard of 0⩽26⩽42. For the year 2021/2022, the score was 27, which falls within the performance indicator assessment standard of 0⩽27⩽42. Based on this data, we can conclude that from an internal perspective, the sustainability performance assessment of SIDO Company has met the SBSC assessment standard.

As for the learning and growth perspective in Table 1.3, the sustainability performance score obtained for the year 2020/2021 was 8.5, within the performance indicator assessment standard of 0⩽8.5⩽12. For the year 2020/2021, the sustainability performance score was 10, also falling within the performance indicator assessment standard of 0⩽ 10 ⩽ 12. Analysis of the data measurement for the Sustainability Balanced Scorecard indicates that performance evaluation of companies now extends beyond merely disclosing the amount of funds utilized in corporate social responsibility activities. It also encompasses various dimensions of the social responsibility undertaken by the company. Performance evaluation of company sustainability can be achieved by employing the balanced scorecard approach, which is linked to environmental indicators. This measurement is referred to as the Sustainability Balanced Scorecard (SBSC) score index.

The SBSC score index is then calculated using the following equation: SBSC_(score index) = Accountability_indicator + Performance_indikator (1))

Tabel 4. SBSC Index Score Calculation

| NO | YEAR | INDIKATOR AACCOUNTABILITY | PERFORMANCE INDICATOR | SCBS SCORES |
|---|---|---|---|---|
| 1 | 2021 | 102 | 113,5 | 215,5 |
| 2 | 2022 | 105 | 121,5 | 226,5 |

From Table 4 above, it is evident that the calculation of the SBSC score index shows that the sustainability performance of SIDO company, as evaluated using the sustainability balanced scorecard, indicates that sustainability performance has met the standards. This is evident from the total SBSC index score of 215.5 for the year 2021 and 226.5 for the year 2022, with the total SBSC index assessment standard ranging from 0 to 215.6 to 316 in the year 2021, and from 0 to 226.5 to 316 in the year 2022.

*Performance Assessment of Corporate Sustainability*

Currently, companies are working to enhance their performance in economic, environmental, and social aspects, making significant contributions to sustainable development. They utilize strategic assessment tools to evaluate their sustainability performance. Jassem et al. (2021) believe that to improve both their economic and environmental performance simultaneously, thereby contributing significantly to sustainable development, companies need to introduce strategic performance measurement tools. Consequently, experts have pointed out that due to the various definitions of sustainable performance, there are diverse perspectives in presenting reports. Hence, they have suggested that the balanced scorecard (BSC) perspective can be employed as a performance measurement technique by integrating environmental and social aspects into the core management system to effectively support decision-making procedures and strategic control of the company (Groot and Selto, 2013). As a result, the sustainability balanced scorecard (SBSC) has been gradually developed. There are significant differences between SBSC and conventional BSC. In addition to the company's profitability, the SBSC also focuses on two other aspects: social responsibility and environmental responsibility (Antonsen, 2014; Hahn et al., 2014). When companies implement the SBSC, they do so not only to align strategy and execution but also to help connect economic, environmental, and social strategies, thereby contributing to the development of long-term sustainability strategies.

In line with the research objective, this study identifies the SBSC framework developed by Nikolaou et al. (2013) based on the SBSC score index. From the results of the data analysis, it is evident that all aspects of the SBSC perspective meet the criteria. Therefore, it can be concluded that the SBSC framework developed by Nikolaou et al. (2013) can be used as a benchmark for assessing the sustainability performance

of companies, especially for SIDO Company, which was used as the research sample. These findings are further supported by research conducted by [author's name not provided].

*Measuring Corporate Sustainability Performance through Sustainability Reports*

The sustainability balanced scorecard (SBSC) serves as a performance measurement and management control tool that plays a crucial role in guiding companies towards sustainability goals. By integrating the four perspectives of the BSC with sustainability dimensions, the SBSC explicitly embeds environmental, social, and ethical concerns, making it a primary methodology used for measuring corporate sustainability performance (Küçükbay & Sürücü, 2019).

In this study, the measurement of corporate sustainability performance still relies on the framework based on the SBSC developed by Nikolaou et al. (2013). Based on this SBSC framework, the researchers used the SBSC score index formula, as described in equation (1). By summing the total accountability indicators with the total performance indicators, the SBSC score index values were obtained. it can be observed that the SBSC score index values for SIDO Company in the years 2021 and 2022 meet the criteria for assessing the sustainability performance of companies, where the standard SBSC score index ranges from 0 to 316. Therefore, it can be concluded that the sustainability performance of SIDO Company is good. This conclusion is further reinforced by the company's achievement of the Gold Proper award from the Ministry of Environment for three consecutive years, starting from 2020 to 2022.

The assessment criteria for the Proper Gold award by the Ministry of Environment are not significantly different from those used in the SBSC framework applied in this study. Both evaluations are based on compliance criteria and criteria that go beyond the minimum regulatory requirements. Compliance criteria include requirements related to environmental documents and reporting, air pollution control, water pollution control, hazardous and toxic waste (B3) management, control of marine pollution, and potential land damage. Beyond compliance criteria involve environmental management system implementation, energy efficiency efforts, emission reduction efforts, implementation of reduce, reuse, and recycle practices for both hazardous and non-hazardous solid waste, water conservation, reduction of wastewater pollution, biodiversity conservation, and community development programs.

## IV. CONCLUSION

Seeing the increasing attention from society towards environmental sustainability has prompted companies to provide added value to the community through corporate sustainability reporting. This shift has transformed the original focus of companies solely on financial objectives, aiming to maximize profits, into social objectives that encompass not only maximizing profits but also preserving the environment and fostering community development, known as corporate social responsibility. In response to this phenomenon, researchers conducted a study on (a) evaluating reliable and transparent assessment techniques to evaluate corporate sustainability performance, and (b) measuring corporate sustainability performance through sustainability reporting. The research findings revealed that the assessment of sustainability performance using the SBSC index score developed by Nikolaou et al. (2013) and applied to SIDO companies met the criteria from an overall measurement perspective. Therefore, it can be concluded that the SBSC framework developed by Nikolaou et al. (2013) can be used as a benchmark for assessing corporate sustainability performance, especially for SIDO companies. Meanwhile, the second research results showed that the sustainability performance of SIDO companies was good, based on the fulfillment of sustainability performance values, reaching 215.5 for the year 2021 and 226.5 for the year 2022, within the range of 0-316. This positive sustainability performance was also evident through SIDO's consecutive three-year receipt of the Gold Proper Award from the Ministry of Environment and Forestry (2020-2022). However, this research has its limitations, as it focused solely on testing previously developed sustainability measurement within the pharmaceutical industry listed on the Indonesia Stock Exchange. Consequently, the study is constrained not only by the framework used as the measuring tool but also by the sample size. Therefore, future research is expected to explore the application of the SBSC performance measurement framework not only within one specific industry but across all industries listed on the Indonesia Stock Exchange

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